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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,653	04/02/2004	Shunpei Yamazaki	0756-7280	9676
31780	7590	12/04/2006	EXAMINER	
ERIC ROBINSON PMB 955 21010 SOUTHBANK ST. POTOMAC FALLS, VA 20165			SEFER, AHMED N	
			ART UNIT	PAPER NUMBER
			2826	

DATE MAILED: 12/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/815,653	Applicant(s) YAMAZAKI ET AL	
	Examiner A. Sefer	Art Unit 2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 39-61 and 66-69 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 39-61 and 66-69 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>9/11/06 & 9/21/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/11/2006 has been entered.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "101" and "102" have both been used to designate PET film (page 6, lines 17-29). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

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3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 39-61 and 66-69 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The application as originally filed does not specifically support the claim limitation "... having an uneven surface" The specification merely discloses that resinous layer 303 being used for planarizing resinous substrate 303 (3rd par. of page 5).

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 68 and 69 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 68 depends from cancelled claims 35 and 37. There is insufficient antecedent basis for this limitation in the claim.

Claim 69 depends from cancelled claims 36 and 38. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

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7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 39, 41, 43, 45, 60, 66 and 67, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakai et al. ("Wakai") USPN 5,229,644 in view of Utsumi ("Utsumi") USPN 4,799,772.

Wakai discloses in figs. 3-13 a display device comprising: a pair of substrates 101/116 facing each other and having an uneven surface; a thin film transistor 111 comprising a coplanar thin film transistor (**as in claim 66**) or an inverted-staggered thin film transistor (**as in claim 67**) formed over one of the pair of filmy substrates, wherein the thin film transistor has a channel formation region 104 comprising amorphous silicon (as in claims 43 and 45); a layer 108 comprising a resinous material comprising acrylic resin (as in claim 60) (col. 4, line 65) or a silicon oxide 103 (**as in claims 41 and 45**) covering the thin film transistor; and a pixel electrode 110 formed over the layer, and electrically connected to the thin film transistor, wherein a resinous layer (the lower/upper portion of region 57) being provided on a surface of one of the pair of resinous substrates (as in claims 39, 41, 43 and 45), but does not specifically disclose a pair of resinous substrates or polyethylene naphthalate substrate.

Utsumi discloses (col. 4, lines 44-59 and abstract) a display device having a pair of resinous substrates facing each other, wherein at least one of the pair of resinous substrates comprises polyethylene naphthalate (**as in claim 68**).

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Therefore, in view of Utsumi's teachings, one having an ordinary skill in the art at the time the invention was made would be motivated to modify Wakai's device by incorporating resinous substrates substrate so as to provide a superior weather resistance, tear strength and heat resistance as taught by Utsumi.

9. Claims 39, 41, 43, 45, 60, 66 and 67, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishiki et al. ("Nishiki") JP 63-279228 in view of Utsumi.

Nishiki discloses in figs. 1-6 a display device comprising: a pair of substrates 21/31 facing each other and having an uneven surface; a thin film transistor 15 comprising a coplanar thin film transistor (**as in claim 66**) or an inverted-staggered thin film transistor (**as in claim 67**) formed over one of the pair of filmy substrates, wherein the thin film transistor has a channel formation region 25 comprising amorphous silicon (**as in claims 43 and 45**); a layer 57 comprising a resinous material or a silicon oxide 23 (**as in claims 41 and 45**) covering the thin film transistor; and a pixel electrode 51 formed over the layer, and electrically connected to the thin film transistor, wherein a resinous layer (the lower/upper portion of region 57) being provided on a surface of one of the pair of resinous substrates (**as in claims 39, 41, 43 and 45**), but does not specifically disclose a pair of resinous substrates polyethylene naphthalate substrate.

Utsumi discloses (col. 4, lines 44-59 and abstract) a display device having a pair of resinous substrates facing each other, wherein at least one of the pair of resinous substrates comprises polyethylene naphthalate.

Therefore, in view of Utsumi's teachings, one having an ordinary skill in the art at the time the invention was made would be motivated to modify Nishiki's device by incorporating a

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pair of resinous substrate so as to provide a superior weather resistance, tear strength and heat resistance as taught by Utsumi..

Regarding the recitations (claims 39, 41 and 45) calling for “...formed by applying a liquid” or “... planarizes the uneven surface”, it refers to a process and "product by process" claims are directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685 and In re Thorpe, 227 USPQ 964, 966. Therefore, the way the product was made does not carry any patentable weight as long as the claims are directed to a device. Further, note that the applicant has the burden of proof in such cases, as the above case law makes clear. Also see MPEP 2113.

10. Claims 40, 42, 44, 46, 60, 61, 66 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakai in view of Utsumi.

Wakai discloses in figs. 3-13 a display device comprising: a pair of substrates 101/116 facing each other and having an uneven surface; a thin film transistor 111 comprising a coplanar thin film transistor (**as in claim 66**) or an inverted-staggered thin film transistor (**as in claim 67**), wherein the thin film transistor has a channel formation region 104 comprising amorphous silicon (as in claim 44) formed over one of the pair substrates; a layer 108 comprising a resinous material or a silicon oxide 103 (**as in claims 42 and 46**) covering the thin film transistor; and a pixel electrode 110 formed over the layer or silicon oxide (**as in claims 42 and 46**), and electrically connected to the thin film transistor, wherein a resinous layer (the lower/upper portion of region 108) comprising acrylic resin (**as in claim 60**) (col. 4, line 65) being provided on a surface of one of the pair of substrates (as in claims 40, 42, 44 and 46), but does not specifically disclose a pair of flexible substrate.

Utsumi discloses (col. 4, lines 44-59 and abstract) a display device having a pair of resinous substrates facing each other, wherein at least one of the pair of flexible substrates comprises polyethylene naphthalate (as in claim 69).

Therefore, in view of Utsumi's teachings, one having an ordinary skill in the art at the time the invention was made would be motivated to modify Wakai's device by incorporating polyethylene naphthalate flexible substrate so as to provide a superior weather resistance, tear strength and heat resistance as taught by Utsumi.

Regarding the recitation (**claims 40, 42 and 46**) calling for "...formed by applying a liquid" or "... planarizes the uneven surface", it refers to a process and "product by process" claims are directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685 and In re Thorpe, 227 USPQ 964, 966. Therefore, the way the product was made does not carry any patentable weight as long as the claims are directed to a device. Further, note that the applicant has the burden of proof in such cases, as the above case law makes clear. Also see MPEP 2113.

11. Claims 47, 49, 51, 53, 55, 57, 59, 60, 66 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakai in view of Wakai et al. USPN 5,821,137 ("Wakai '37") and Utsumi.

Wakai discloses in figs. 3-13 a display device comprising: a pair of resinous substrates 101/116 facing each other an uneven surface; a thin film transistor 111 comprising a coplanar thin film transistor (**as in claim 66**) or an inverted-staggered thin film transistor (**as in claim 67**) formed over one of the pair of resinous substrates, wherein the thin film transistor has a channel formation region 104; a layer 108 comprising a resinous material comprising acrylic resin (**as in**

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claim 60) (col. 4, line 65) or a silicon oxide 103 (**as in claims 49, 53 and 57**) covering the thin film transistor; and a pixel electrode 110 formed over the layer or the silicon oxide (**as in claims 49, 53 and 57**), and electrically connected to the thin film transistor, wherein a resinous layer (the lower/upper portion of region 108) is provided on a surface of one of the pair of filmy substrates, but discloses neither microcrystalline silicon nor polyethylene naphthalate substrate.

Wakai '37 discloses utilizing a laser light comprising excimer laser light (as in claim 59) to form a channel formation region of a thin transistor comprising microcrystalline silicon.

Utsumi discloses (col. 4, lines 44-59 and abstract) a display device having a pair of resinous substrates facing each other, wherein at least one of the pair of flexible substrates comprises polyethylene naphthalate (**as in claim 68**).

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify Wakai's device by incorporating a channel formation region comprising microcrystalline silicon since that would reduce leakage current as taught by Wakai '37. It would have been obvious to incorporate polyethylene naphthalate substrate so as to provide a superior weather resistance, tear strength and heat resistance as taught by Utsumi.

Regarding the recitation (**claims 47, 49, 53 and 57**) calling for "...formed by applying a liquid" or "... planarizes the uneven surface", it refers to a process and "product by process" claims are directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685 and In re Thorpe, 227 USPQ 964, 966. Therefore, the way the product was made does not carry any patentable weight as long as

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the claims are directed to a device. Further, note that the applicant has the burden of proof in such cases, as the above case law makes clear. Also see MPEP 2113.

12. Claims 48, 50, 52, 54, 56, 58-60, 66 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakai in view of Utsumi and Wakai '37.

Wakai discloses in figs. 3-13 a display device comprising: a pair of substrates 101/116 facing each other an uneven surface; a thin film transistor 111 comprising a coplanar thin film transistor (**as in claim 66**) or an inverted-staggered thin film transistor (**as in claim 67**), wherein the thin film transistor has a channel formation region 104 comprising amorphous silicon formed over one of the pair substrates; a layer 108 comprising a resinous material or a silicon oxide 103 (as in claims 50, 54 and 58) covering the thin film transistor; and a pixel electrode 110 formed over the layer or silicon oxide (as in claims 50, 54 and 58), and electrically connected to the thin film transistor, wherein a resinous layer (the lower/upper portion of region 108) comprising acrylic resin (as in claim 60) (col. 4, line 65) being provided on a surface of one of the pair of substrates (as in claims 40, 42, 44 and 46), but discloses neither microcrystalline silicon nor polyethylene naphthalate flexible substrate.

Utsumi discloses (col. 4, lines 44-59 and abstract) a display device having a pair of resinous substrates facing each other, wherein at least one of the pair of flexible substrates comprises polyethylene naphthalate (as in claim 69).

Wakai '37 discloses utilizing a laser light comprising excimer laser light (**as in claim 59**) to form a channel formation region of a thin transistor comprising microcrystalline or crystalline (**as in claims 52, 54, 56 and 58**) silicon.

Therefore, in view of Utsumi's teachings, one having an ordinary skill in the art at the time the invention was made would be motivated to modify Wakai's device by incorporating polyethylene naphthalate substrate so as to provide a superior weather resistance, tear strength and heat resistance as taught by Utsumi. It would have been obvious to incorporate a channel formation region comprising microcrystalline/crystalline silicon since that would reduce leakage current as taught by Wakai '37.

Regarding the recitation (**claims 48, 50, 54 and 58**) calling for "...formed by applying a liquid" or "... planarizes the uneven surface", it refers to a process and "product by process" claims are directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685 and *In re Thorpe*, 227 USPQ 964, 966. Therefore, the way the product was made does not carry any patentable weight as long as the claims are directed to a device. Further, note that the applicant has the burden of proof in such cases, as the above case law makes clear. Also see MPEP 2113.

10. Claim 61 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wakai in view of Utsumi as applied to claims 39-46 above, and further in view of Takenouchi.

The combined references disclose the device structure as recited in the claim, but do not specifically disclose a resinous layer comprising methyl esters of acrylic acid, ethyl esters of acrylic acid, butyl esters of acrylic acid, and 2- ethylhexyl esters of acrylic acid.

Takenouchi discloses (col. 3, lines 55-60) a resinous layer comprising methyl esters of acrylic acid, ethyl esters of acrylic acid, butyl esters of acrylic acid, and 2- ethylhexyl esters of acrylic acid.

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Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to incorporate Takenouchi's teachings so as to provide a substrate free from oligomers as taught by Takenouchi.

13. Claim 61 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wakai in view of Wakai '37 and Utsumi as applied to claims 47-58 above, and further in view of Takenouchi.

The combined references disclose the device structure as recited in the claim, but do not specifically disclose a resinous layer comprising methyl esters of acrylic acid, ethyl esters of acrylic acid, butyl esters of acrylic acid, and 2- ethylhexyl esters of acrylic acid.

Takenouchi discloses (col. 3, lines 55-60) a resinous layer comprising methyl esters of acrylic acid, ethyl esters of acrylic acid, butyl esters of acrylic acid, and 2- ethylhexyl esters of acrylic acid.

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to incorporate Takenouchi's teachings so as to provide a substrate free from oligomers as taught by Takenouchi.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (571) 272-1921.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ANS

November 26, 2006



A. Sefer
Patent Examiner
Art Unit 2826